REMARKS

In response to the final Office Action of February 6, 2004, Applicant requests entry of this Amendment and Response, including the above amendments which formally put the claims in better condition for allowance. Applicant also requests consideration of these remarks.

By the above amendments, claim 1 and mis-numbered claim 92 have been cancelled, claims 47, 48, 50-64, 66-80, 82-91 (claim 88 has been amended to correct its dependency) and 93-104 remain pending, and claim 105 has been added. Entry and reconsideration are earnestly requested.

Claim Objections

Mis-numbered claim 91(b), which the Examiner renumbered as claim 92, has been cancelled. A new claim 105, corresponding to the subject matter of what should have been claim 92, has been added.

Claim Rejections – 35 U.S.C. 102(b)

Applicant acknowledges that the Examiner has withdrawn the earlier rejection of claims 1, 47-51, 59, 60, 63-67, 75, 76, 79-83, 91, 92 and 95 under § 102(b).

Claim Rejections – 35 U.S.C. 102(a)

In the Office Action of February 25, 2003, the Examiner rejected claims 1, 47-51, 59, 60, 63-67, 75, 76, 79-83, 91, 92 and 95 under 35 U.S.C. 102(a) as being anticipated by a Screen Print from www.mapinfo.com (MapInfo.com). Applicant assumes that the Examiner has withdrawn this earlier rejection due to applicant's arguments.

Claims 1, 47-51, 59, 60, 63-67, 75, 76, 79-83, 91, 92 and 95-104 stand rejected under 35 U.S.C. 102(a) as being anticipated by various archived web pages retrieved from www.esri.com (ESRI) on February 15, 1998 and July 5, 1998. Applicant respectfully submits that each web page should be treated as a separate document.

Applicant further submits that one of the documents forming the ESRI rejection does not have a verified publication date. This document is titled "See Your Business From a New Perspective". Applicant respectfully requests that the Examiner supply an availability date for this document if it is intended to be relied upon as a basis for the rejection.

The invention as defined in the present claims generates and displays one or more contour lines around each data point, each contour line representing data values that are less than the data value of a data point around which the contour line is displayed. It will be appreciated that in some circumstances the contour lines around the data points may overlap and will only completely surround the data point if the data point is represented in isolation. Nevertheless, the contour lines at least partially surround each data point or group of data points. This feature of the applicant's data visualization software enables a user to quickly view data points of interest.

Independent claim 47 relates to a data visualization system that includes a contour generator arranged to generate and display one or more contour lines representing a surface in which each data point is displayed as a local maximum.

Independent claim 96 relates to a data visualization system that includes a contour generator arranged to generate and display a contoured representation such that each data point is displayed as a local maximum. Independent claims 63, 99 and 101 are directed to related methods of data visualization. Independent claims 79, 102 and 104 are directed to related data visualization computer programs. Claim 98 is directed to a data value memory that is related to the previous claims.

The Examiner has asserted that the above features recited in the independent claims have been disclosed and/or taught in the ESRI references. However, applicant respectfully submits that the Examiner does not indicate the locations for the specific language that is allegedly read on the claimed features.

Some of the ESRI documents raised by the Examiner describe a GIS (geographic information system). GIS is described as being a computer-based tool for mapping and

analyzing things that exist and events that happen on Earth. GIS technology is described as integrating common database operations such as query and statistical analysis with the unique visualization and geographic analysis benefits offered by maps.

One of the references raised by the Examiner describes the general purpose GIS systems as essentially performing five processes or tasks, namely input, manipulation, management, query/analysis and visualization. Simple queries in the query/analysis process include:

- Who owns the land parcel in the corner?
- How far it is between two places?
- Where is land zoned for industrial use?

Analytical questions include:

- Where are all the sites suitable for building new houses?
- What is the dominant soil type for oak forest?
- If I build a new highway here, how will traffic be affected?

GIS technology is described as having a use in analyzing geographic data to look for patterns and trends and to undertake "what if" scenarios. Examples given include proximity analysis and overlay analysis.

Proximity analysis answers questions such as:

- How many houses lie within 100m of this water main?
- What is the total number of customers within 10 km of this store?
- What proportion of the alfalfa crop is within 500m of the well?

Overlay analysis involves the integration of different data layers. This could be a visual operation or alternatively one or more data layers could be joined physically.

The visualization phase recognizes that maps are very efficient at storing and communicating geographic information. GIS provides tools to extend the art and science of cartography. The reference further describes that map displays can be integrated with reports, 3 dimensional views, photographic images and other output such as multi-media.

The Examiner provides an example of GIS visualization in a graphical representation accompanying one of the ESRI references titled "ArcView Business Analyst – The Total Business Solution". The visualization shows a spatial map of a predefined graphical area. The figure shows an area map and includes streets, for example highways, primary roads, secondary roads, and local roads.

ArcView Business Analyst is described as having the capability to create simple or complex ring analysis for locations. The figure shown is an example of a proposed or actual site for a retail store and indicated as 133 in the legend. The visualization shown is a simple ring analysis. The figure shows the average distance taken to drive to store 133. There is one ring superimposed on the geographic representation indicating a primary drive time. There is a further ring encompassing the first ring showing secondary drive time. There is also a third outer ring encompassing the inner rings that show a tertiary drive time.

There is no legend on the drive time. Assuming that the primary ring is 20 minutes, the secondary ring is 40 minutes, and the tertiary ring is 60 minutes, the visualization shows the geographic areas from which potential customers can reach store 133 within 20 minutes, 40 minutes and 60 minutes.

The visualization shown does not include one or more contour lines. The visualization shown is instead a series of concentric rings. These rings represent the drive time, for example in minutes, required to travel to store 133. On this basis, the point represented by store 133 would have a value of 0. The primary ring represents a surface having a value of 20 (minutes). The secondary ring represents a surface having a value of 40 and the tertiary ring represents a surface having a value of 60.

This figure of store 133 and the three rings does not disclose one or more contour lines representing a surface in which each data point is displayed as a local maximum. The data point in the visualization would have the value 0 as the drive time required to travel to store 133. The data point shown in the visualization is instead displayed as a local minimum, rather than a local maximum as required by applicant's claims.

Applicant respectfully submits that the visualization does not show one or more contour lines representing the surface in which each data point is displayed as a local maximum. Rather, the visualization shows a data point represented as a local minimum.

Furthermore, each of the primary, secondary and tertiary rings do not represent data values that are less than the data values of the data point (store 133) around which each ring is displayed. Each ring instead represents data values that are greater than the data value of the data point representing store 133. In contrast, in Applicant's claims each contour line represents data values that are less than the data values of the data points around which the contour line is displayed.

In response to item 8 of the Office Action, applicant respectfully submits that independent claims 1, 47, 63, 79, 96, 99 and 102 are not disclosed or taught by the ESRI references. None of the ESRI references disclose a data visualization system, method or computer program in which maps or graphs are displayed having contours around one or more data points, each data value centered on a data point.

The ESRI references do not describe a system, method or computer program involving a contour generator arranged to generate or display one or more contour lines representing the surface in which each data point is displayed as a local maximum. The ESRI documents do not disclose a system, method or computer program in which a contour generator is arranged to generate and display a contoured representation, such that each data point is displayed as a local maximum. Furthermore, the documents do not describe a contour generator that displays one or more contour lines at least partially around each data point, each contour line representing data

values that are less than the data value of the data point around which the contour line is displayed.

In response to item 15 of the Office Action, applicant respectfully submits that none of the ESRI references disclose or teach the subject matter of independent claims 98, 101 and 104 for the same reasons as those set out above.

Items 9, 10, 11, 12, 13 and 14 of the Office Action relate to claims that are dependent on individual independent claims described above. These dependent claims are not described or taught in the ESRI references for the same reasons as those set out in relation to the independent claims.

Claim Rejections – 35 U.S.C. 103

Claims 52-58, 61, 62, 68-74, 77, 78, 84-90, 93 and 94 stand rejected as being obvious in view of ESRI. Applicant respectfully submits that the rejected claims are dependent on claims that are considered novel and non-obvious over ESRI and are, therefore, patentable.

Applicant respectfully submits that the present invention provides a way of displaying a set of data points irregularly spread out in space. The invention displays the data points in such a way that the display uses the entire area, the display emphasises the places that the data points are, the display does not mislead the view into thinking that other areas are important, the display merges together the data from several points if the values are similar, the display animates well, showing gradual changes and data producing gradual changes in image, and the display also gives the most interest where differing values are close together.

Applicant acknowledges that map making and geographic analysis are not new techniques. Applicant submits, however, that the sophisticated contouring techniques of the present invention are much more effective than those of the ESRI system in emphasising the places where data points are. The uses of the ESRI system are limited to simple queries such as simple ring analysis for locations. This is a simple one dimensional representation showing the desired location of a potential retail store or similar. ESRI references either alone or in

combination do not teach or suggest the sampling of various data points and the representation in a visualization of this data point or these data points such that each data point is represented as a local maximum. The visualizations shown in the ESRI reference are limited to simple flat ring analysis in which representations are not shown in three dimensions.

The rings shown in the ESRI reference(s) show the individual data points around which the rings are drawn as local minimums rather than local maximums. Applicant has invented an entirely new and effective technique for visualising data by displaying individual data points as local maximums.

Applicant refers the Examiner to Figure 3 of the subject patent specification. Figure 3 illustrates at 100 one example of a display generated by the system where a merchant operates a casino or similar gaming venue. The graphical representation shows a spatial representation of an area of the casino showing the layout of individual gaming machines and stations, two of which are indicated at 102 and 108 respectively. A finite set of data values is maintained in computer memory. This set of data values represents, in the case of Figure 3, the revenue obtained from individual gaming machines. The revenue for gaming machine 102 and gaming machine 108 constitutes a finite set of data values. Figure 3 includes data points 106 and 104 that are associated with individual gaming machines 102 and 108 respectively. As shown in Figure 3, a representation is displayed in which each data value, for example the revenue from individual gaming machines, is centered on the respective data points associated with each of those gaming machines.

The representation is contoured so that each data point, for example data points 104 and 106, are displayed as a local maximum. The contoured representation shown in Figure 3 is an artificial surface generated by the invention. The surface has no real data values other than at the source points 104, 106 and other data points. The contoured surface is displayed in a way that the surface "falls away" from these data points 104 and 106. The surface therefore has no meaning for mapping and animating the overall data other than at the discrete data points 104, 106 and others.

The invention provides a simple and elegant representation for mapping and animating data. The invention is distinct from other types of GIS mapping in which data points are sampled and generated in the form of terrain maps. In these prior art type maps, each data point could be a global maximum, a local maximum, a global minimum, a local minimum or an inflection point. Such representations are simply approximations of simple terrestrial data. This is a different technique to that presented by the invention in which the contoured surface being displayed has no real value other than at the sampled source points.

Applicant respectfully submits that it would not have been obvious to one of ordinary skill in the art at the time the invention is made to use the data visualization system with a casino or gaming venue, a wagering or betting service provider, a financial or insurance services provider, reservation of products or services, a manufacturing facility, telecommunication service provider or sports event. Applicant respectfully submits it would not have been obvious to one of ordinary skill in the art at the time the invention was made to use the data visualization system of the invention at all, regardless of the particular industry to which applicant has demonstrated the data visualization has application.

Applicant respectfully submits that the claimed invention is not disclosed, or taught or suggested, by the ESRI references cited by the Examiner.

This response should not generate any additional fees, however, a petition to extend the time to respond by 3 months (from May 6, 2004 to August 6, 2004) is enclosed herewith along with a check in the amount of $475.00 to cover the fee associated with the petition. The Office is also hereby authorized to charge any deficiency related to this communication or the petition to Deposit Account No. 04-1420.

In view of the above amendments and preceding remarks, the application is now in allowable form, and reconsideration and allowance are respectfully requested.

Respectfully submitted,

DORSEY & WHITNEY LLP
Customer Number 25763

Date: August 4, 2004

By: David E Bruhn

David E. Bruhn, Reg. No. 36,762
Intellectual Property Department
Suite 1500
50 South Sixth Street
Minneapolis, MN 55402-1498
(612) 340-6317